(calculated from diagnosis) was 131 months and the five-year overall survival rate was 55.5%.

Conclusions: In our experience, ASCT was associated with excellent disease control and outcomes in patients with relapsed refractory LPHL.

152

Intravenous Compared to Oral Busulfan with Cyclophosphamide for Autologous Hematopoietic Progenitor Cell Transplant Conditioning for Plasma Cell Myeloma

Ronald Sobecks [1], Lisa Rybicki [2], Robert M. Dean [1], Donna Abounader [1], S. Andresen [1], Hien Duong [1], Fred Reu [1], Brian Bolwell [1], Ed Copelan [1], Matt E. Kalaycio [1]. [1] Department of Hematologic Oncology and Blood Disorders, Cleveland Clinic Taussig Cancer Institute, Cleveland, OH; [2] Quantitative Health Sciences, Cleveland Clinic Taussig Cancer Institute, Cleveland, OH

Busulfan (Bu) is commonly used with cyclophosphamide (Cy) as a conditioning regimen for HPCT. We previously reported that substituting IV for oral Bu was associated with less relapses and superior relapse free (RFS) and overall survivals (OS) for relapsed or refractory NHL pts undergoing AHPCT (Br J Haematol 2010;148:226-34). It is unknown whether such a benefit exists for IV Bu when used with Cy for AHPCT for plasma cell myeloma. We performed a prospective study with this regimen without Bu dose adjustment in order to compare outcomes with historical controls who received oral Bu at our institution. 55 pts were transplanted with IV Bu from 7/29/09-8/23/12 and 117 oral Bu pts were transplanted from 3/22/94-4/6/06. IV Bu pts were older ($P < 0.001$), more often had lower Karnofsky PS at HPCT ($P < 0.001$), more prior therapies ($P < 0.001$), more advanced disease status at HPCT (p=0.002) and a longer median time from diagnosis to HPCT (14 vs 8 mos, $P < 0.001$). More oral Bu pts received G-CSF alone for mobilization therapy (90 vs 46%, $P < 0.001$), had more days of apheresis (median 3 vs 2, $P < 0.001$) and higher median CD34+ and TNC doses (7.22 vs 4.68 x 10^6/kg, respectively, $P < 0.001$; 12.60 vs. 8.52 x 10^8/kg, respectively, $P < 0.001$). There were no differences in time to neutrophil engraftment, but platelet engraftment was more rapid for oral Bu pts (median 11 vs 15 d, $P < 0.001$). Oral Bu pts had significantly more and worse mucositis by the modified OMAS (66% vs. 0%, $P < 0.001$; median scores 0.2 vs. 0, $P < 0.001$). IV Bu pts had more infections (p=0.034), but there were no differences between the groups regarding CMV infection, GI or pulmonary toxicity, relapse, relapse free survival RFS or OS. At this time 46 (84%) of the IV Bu and 39 (33%) of the oral Bu pts are alive, however, the median follow up was longer for the oral Bu pts (118 vs 13 mos, $P < 0.001$). The median RFS and OS have not yet been observed in the IV Bu group, but were 26 and 63 months, respectively for the oral Bu pts. Disease relapse was the most common cause of death for both the IV and oral Bu pts (67% and 77% of deaths). 1 and 2 year relapse mortality rates were 7% and 19% for IV Bu pts and 7% and 22% for oral Bu pts. 1 and 2 year non-relapse mortality rates were 5% and 12% for IV Bu and 4% and 4% for oral Bu. Death due to pulmonary toxicity occurred in 4 oral Bu pts and 0 IV Bu pts. Based upon these preliminary results using IV instead of oral Bu decreases toxicity and potentially improves safety as suggested from our finding of significantly less oral mucositis and no pulmonary deaths with IV Bu. Further follow up of the IV Bu pts is required to adequately assess for a survival benefit. Investigation of PK based Bu dosing strategies in this transplant setting may be appropriate to help elucidate whether outcomes may be further improved.

153

Impact of Antiviral Prophylaxis Duration On Varicella Zoster Virus Infection Rates in Recipients of Autologous Hematopoietic Cell Transplantation

Quoc Truong [1], Lauren Veltri [2], Abraham Kanate [3], Mehdi Hamadani [4], Michael Craig [5], Aaron Cumpston [6]. [1] Hematology/Oncology, West Virginia University, Morgantown, WV; [2] West Virginia University; [3] Section of Hematology/Oncology, Department of Medicine, West Virginia University, Morgantown, WV; [4] Medicine, Hematology/Oncology, West Virginia University - Mary Babb Randolph Cancer Center, Morgantown, WV; [5] Osborn Heme Malignancy and Transplant Service, West Virginia University, Morgantown, WV; [6] Pharmacy, West Virginia University Hospitals, Morgantown, WV

Introduction: Varicella-Zoster Virus (VZV) infection is a relatively common cause of morbidity following autologous hematopoietic cell transplant (auto-HCT). Previous guidelines recommended antiviral prophylaxis against VZV only during the post HCT neutropenia period. The CDC in 2009 recommended extending VZV prophylaxis for 1 year post-transplantation.

Methods: We retrospectively analyzed rates of VZV infection following auto-HCT at our transplant center prior to and after the implementation of extended acyclovir prophylaxis in June 2008. We divided our study population into three different cohorts according to the length of VZV prophylaxis: (1) prophylaxis until neutrophil recovery to ≥500/uL (n=76), (2) prophylaxis for 6months (n=12) or (3) 12months (n=40) post auto-HCT. All patients received acyclovir 400 mg oral or iv twice daily or valacyclovir 500 mg oral daily. For patients in whom VZV infection occurred, data was collected on severity of infection, timing of onset, treatment of the reactivation and any associated complications.

Results: 128 patients undergoing auto-HCT between January 1,2004 and January 31, 2010 were included in the study. Table 1 demonstrates baseline characteristics for the three cohorts. By Fisher's exact test, there was a significant difference in rates of VZV infection between the neutrophil recovery and 12months prophylaxis cohorts at 14% (n=11) and 2% (n=1) (P=0.03), respectively. VZV infection rate in the 6months prophylaxis group was 16% (n=2), but did not reach statistical significance due to small numbers. Median time to the onset of VZV infection was 4 months (1-10 months) in the neutrophil recovery group, whereas only 1 event occurred in the 12 month prophylaxis group at 19-months post-transplant. Complications observed with VZV infections include post-

Table 1

Complete follow-up (2 yrs)	Prophylaxis until neutrophil recovery	Prophylaxis for 6 months	Prophylaxis for 1 year
Number	76	12	40
Median age (range)	54 (16-72)	52 (22-72)	55 (26-70)
Conditioning Regimen:			
Melphalan	41 (54%)	5 (42%)	25 (62%)
Myeloablative chemotherapy	35 (46%)	7 (58%)	15(38%)
Autologous Stem Cell Source:			
Peripheral blood	68 (89%)	12 (100%)	39 (98%)
Bone marrow	6 (8%)	0	0
Both	2 (3%)	0	1 (2%)
Bortezomib use:			
Prior to transplant	10 (13%)	5 (42%)	15 (38%)
Post transplant	5 (7%)	0	5 (12%)